

N.K.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,512	04/02/2001	John S. Perry	1657.48US01	1115

24113 7590 11/06/2003

PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.
 4800 IDS CENTER
 80 SOUTH 8TH STREET
 MINNEAPOLIS, MN 55402-2100

EXAMINER

SAADAT, CAMERON

ART UNIT PAPER NUMBER

3713

DATE MAILED: 11/06/2003 14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/824,512

Applicant(s)

PERRY, JOHN S.

Examiner

Cameron Saadat

Art Unit

3713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/28/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

In response to amendment filed 7/28/03, claims 1-20 are pending in this application.

Information Disclosure Statement

The information disclosure statement filed 7/28/03 citing US 6,208,955, has already been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6 and 9-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson (NASA Technical Memorandum 110164 Manual for a Workstation-based Generic Flight Simulation Program).

Regarding claim 1, Jackson discloses an evaluation simulation system for a weapon system comprising: a computer system programmed to implement a causal network model comprising a collection of analysis models including at least one dynamic parameter, for creating a virtual representation of a weapon system; at least one virtual simulation system coupled to a causal network model to simulate a weapon system; a user interface coupled to at least said computer system to selectively input data into said causal network model and receive information from said causal network model and said virtual simulation system (See P. 1-2).

Regarding claim 16, Jackson discloses an integrated evaluation and simulation computer system for allocating resources across a system architecture of a weapon system to optimize a combat effectiveness of said weapon system, said computer system comprising:

Art Unit: 3713

means for inputting data into and receiving information from said computer system; means for distributing data and information between said computer system and at least one virtual simulation system; and means for creating a virtual representation of an optimally effective weapon system based on a causal network model of said weapon system (see entire document).

Regarding claim 17, Jackson discloses a method of integrated evaluation and simulation for allocating resources across a system architecture of a weapon system to optimize a combat effectiveness of said weapon system, said method comprising the steps of: providing a computer system having a user interface and a causal network model; providing a virtual simulation system; selectively inputting data into said causal network model to create a virtual representation of an optimally effective weapon system; selectively running said virtual representation of said optimally effective weapon system in said virtual simulation system; and utilizing information to enhance said virtual representation of said optimally effective weapon system (See entire document).

Regarding claim 18, Jackson discloses, a computer-readable storage media storing at least one computer program that operates as an integrated performance simulator for allocating resources across a system architecture of a weapon system to optimize a combat effectiveness of said weapon system, said program comprising the steps of: storing a causal network model of said weapon system in said computer system; obtaining data necessary for said program to create a virtual representation of an optimally effective weapon system; pulsing said causal network model to create said virtual representation of said optimally effective weapon system; selectively sending said virtual representation to a virtual simulation system for simulating weapon system operations; and receiving information about the performance of said weapons system (See entire document).

Regarding claim 19, Jackson discloses an integrated evaluation and simulation system for a weapon system, comprising: a computer system programmed to implement a causal network model comprising an integrated collection of analysis models for creating a virtual representation of a weapon system and to implement a means to communicate with a virtual simulation system; and a user interface operably coupled to at least said computer system to selectively input data into said causal network model and receive information from said causal network model and said virtual simulation system (See entire document).

Regarding claim 20, Jackson discloses an integrated evaluation and simulation system for a weapon system, comprising: a computer system programmed to implement a causal network model comprising an integrated collection of analysis models for creating a virtual representation of a weapon system; and a user interface operably coupled to said computer system to selectively input data into and receive information from said causal network model (See entire document).

Regarding claim 2, Jackson discloses a simulation system comprising an operation simulator to simulate operations of the aircraft (weapon system); and an effectiveness simulator to evaluate the effectiveness of the aircraft in a simulated operational environment (see entire document).

Regarding claim 3, Jackson discloses a simulation system, wherein the computer system further comprises a control system coupled to said causal network model to control operation of said causal network model in accordance with one of a plurality of modes of operation (P. 1, ¶ 6).

Regarding claim 4, Jackson discloses a simulation system, wherein the control system operates the causal network model in a dependencies mode (P. 1, ¶ 6).

Regarding claim 5, Jackson discloses a simulation system, wherein the causal network model performs a sensitivity analysis between an operational performance of the weapon system and an operational performance of a selected attribute of the weapon system (P. 2, ¶¶1-2).

Regarding claim 6, Jackson discloses a simulation system, wherein the control system includes an optimization routine that optimizes allocation of one or more selected constrained resources or design of one or more attributes (trim) of the weapon system by utilizing a causal network model (P. 9-10).

Regarding claim 9, Jackson discloses a simulation system wherein the user interface has a menu driven graphical user interface (P. 1, ¶ 4).

Regarding claim 10, Jackson discloses a simulation system wherein said user interface visually displays a diagram of a causal network model having commonality with said causal network model (P. 1, ¶ 5).

Regarding claim 11, Jackson discloses an evaluation simulation system for a weapon system wherein the user interface displays data in a modular configuration of tables associated with one of a plurality of components or attributes of a weapon system (P. 6).

Referring to claim 12, Jackson discloses a simulation system for a weapon system wherein a causal network model communicates with a virtual simulation system via a series of data arrays (P. 2, ¶¶1-2).

Regarding claim 14, Jackson discloses an evaluation simulation system for a weapon system (Col. 5, line 40) wherein a causal network model includes a relational database to store data that define at least one interrelationship between a plurality of parameters of the causal network model or an operational performance and at least one parameter of the causal network model (P. 2, ¶¶1-2).

Art Unit: 3713

Regarding claim 15, Jackson discloses an evaluation simulation system for a weapon system wherein said causal network model has a modular implementation and each module is represented by a separate subroutine (P. 3).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (NASA Technical Memorandum 110164 Manual for a Workstation-based Generic Flight Simulation Program) in view of Allred.**

Regarding claim 7, Jackson discloses all of the claimed subject matter with the exception of disclosing an optimization routine that implements a *gradient search methodology* to optimize allocation of one or more selected constrained resources or design of one or more selected components or attributes of said weapon system. However, Allred teaches a software tool comprising a gradient search methodology to optimize coefficients of a weapon system

Art Unit: 3713

(See P. 360). Thus, in view of Allred, it would have been obvious to a person of ordinary skill in the art to modify the optimization routine described in Jackson, by providing a gradient search methodology to avoid the fatal flaw of instability, which occurs during a non-linear approach of providing an optimization routine.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (NASA Technical Memorandum 110164 Manual for a Workstation-based Generic Flight Simulation Program) in view of Nakajima (U.S. Patent No. 6,411,945).

Regarding claim 8, Jackson discloses all of the claimed subject matter with the exception of disclosing an optimization routine directed towards cost and weight. However, Nakajima teaches an optimization routine comprising cost and weight constraints (column 10, lines 29-35). Hence, in view of Nakajima, it would have been obvious to one of ordinary skill in the art to modify the optimization routine described in Jackson, by providing cost and weight constraints, thereby minimizing the size and weight of military equipment while maintaining a cost-effective product.

Response to Arguments

Applicant's arguments with respect to claim 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Jackson, Bruce E. "Results of a Flight Simulation Software Methods Survey" – discloses a summary of a survey of flight simulation practices.

Art Unit: 3713

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron Saadat whose telephone number is 703-305-5490. The examiner can normally be reached on M-F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa J Walberg can be reached on 703-308-1327. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

CS
CS

T. Walberg
Teresa Walberg
Supervisory Patent Examiner
Group 3700